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1 Background

Since the late 1960s and early 1970s, Conversation Analysis (CA) has established its place as one of the most rigorous yet flexible methods to analyse and understand how people interact in real life. This method has demonstrated its applicability to various settings and types of conversations, including the focus of this volume – digital interactions. This collection explores the contemporary forms of technology-mediated interaction ranging from casual instant messaging to video-mediated workshops, in several languages and within several cultures.¹ Although the objects of study vary, all the chapters in this volume share conversation analytic perspective in studying technology-mediated communication. That is, the focus is on the ways in which technologies and media are – and can be shown to be – relevant for the participants themselves and consequential for the organisation of social interaction (see e.g., Arminen et al. 2016).

At the heart of CA is the study of social action as it is implemented through language as well as through other semiotic resources such as facial expressions, gestures, emojis and *Likes*. Talking (or writing) in interaction does not mean merely transmitting information to the recipient but doing various social actions such as making a proposal, asking a favour, thanking, telling a piece of news, etc. The linguistic formats and resources are therefore viewed as being in service of implementing such actions in a recognisable way (Levinson 2013). A key difference between CA and many forms of discourse analysis is that CA focuses on how interaction unfolds moment-by-moment and how participants themselves make sense of each other's contributions in this sequentially organised interaction (e.g., Schegloff 1996: 55–56; Heritage 1984: 241; see also Wooffit 2005). In other words, as a method of warranting

analytic claims, each turn is interpreted in relation to the previous and the next turn (Heritage 1984: 242).

Another distinctive feature of CA is that it does not rely on *a priori* expectations that would motivate the course of analysis based on outer features, such as gender, age, or cultural background, or the physical or digital setting such as a doctor's office or a messaging application. They are considered as relevant only to the extent to which the participants orient to them. That is, the relevant contexts are taken as being created locally in and through conversation. There is no denying that a digital platform can set restraints or provide new resources for interaction, but all in all, the important question is whether the interactants themselves display orientation to the technology or to the mediated nature of their conversation while doing "business as usual" through their devices. As Rintel (2015: 123) observes, "[t]he affordances of technology are materially inescapable but their relevance as a semiotic resource is a matter for participants".

This book offers a wide-ranging perspective on the state-of-the-art conversation analytic work on the impact of different types of technologies and media on social interaction. It furthers our understanding of whether or to what extent the varying practices of digital interaction can be considered as adaptations of the basic organisations and resources of co-present face-to-face interaction. The chapters explore the emerging practices in contemporary digital interaction and interaction related to digital technologies, covering a wide range of digital platforms (such as messaging applications, social networking sites, and video conferencing systems) and human-technology interactions (such as chatbots and social robots). The chapters are organised into four sections according to the platform or type of digital interaction: mobile messaging, social media, video conferencing, and human-computer interaction. Each of the chapters highlights an interactional or linguistic phenomenon – an action, a practice, a sequence, or a larger structure. Some of these are unique to online environments, such as graphics or hashtags, whereas some occur in both on online and offline interaction, such as repair initiators and invitations. The size of the unit under inspection ranges from a single resource (such as a graphic) to the overall structural organisation of an entire conversation.

This introduction provides an overview of some of the key CA concepts and analytic procedures and reviews their applicability to digital interaction. Specifically, we consider turn-taking (Section 2), turn design and sequentiality (Section 3), multimodality (Section 4), and participation in digital environments (Section 5). We present evidence that while some of the concepts such as 'turn' and 'projection' might not be readily applicable to text-based forms of interaction, and while some phenomena might not be straightforwardly approached with CA (such as *Likes* on social media), the essence of the method – the analysis of *position and composition* of contributions (e.g., Schegloff 2007: 20–21) – remains valid (see also, Meredith & Stokoe 2014: 202). We conclude the chapter with an overview of the chapters in this book (Section 6) and a brief conclusion (Section 7).

2 How to apply concepts of CA to digital interaction: the case of turn-taking and text-based messaging

This section presents our discussion of the issues that arise when applying the central concepts of CA to text-based digital interaction. We closely examine the concepts related to conversational turn-taking, that is, 'turn', 'turn-constructual unit', and 'transition relevance place', and watch what happens when they collide with another type of set of units such as 'message' or 'transmission-unit'.

In conversation analytic research, the “question of units” (e.g., Szczepek Reed & Raymond eds. 2013) has been a target of extensive debate since the seminal paper by Sacks, Schegloff, and Jefferson (1974). One of the central issues is the relationship between linguistic units (such as phrases, clauses, and sentences) and units that are relevant for conversational turn-taking and the formation of actions. Famously, Sacks et al. (1974: 702) suggest that turns are composed of turn constructional units (TCUs), while TCUs are typically composed of linguistic structures such as sentences, clauses, phrases, and lexical constructions. Together with their prosodic design, TCUs have the ability to form recognisable actions in specific activity contexts (e.g., Schegloff 1996: 112–113; Ford & Thompson 1996: 148–151). For turn-taking, a central asset of the identifiable linguistic structures is their projectability. That is, participants in the interaction can anticipate the completion of the turn and thus the transition relevance place before the turn is actually completed, which enables smooth turn-taking. In fact, “unit types” that lack projectability cannot be used as resources for turn-taking (Sacks et al. 1974: 702–704).

For text-based digital interaction, the question of units is interesting in terms of the applicability of the central concepts of CA and thus the whole methodology as already pointed out in the early studies (e.g., Garcia & Jacobs 1999). Indeed, while written, digital conversation – particularly chats and instant/mobile messaging – can be well analysed in terms of the sequences of action and sequential implicativeness, the question of units and turn-taking is far more complex in these digital environments. The central reason for this is the non-synchronous nature of messaging. In other words, the ongoing message production and thus projectability are not available for the recipient(s) because the message is observable to them only upon its posting (e.g., Garcia & Jakobs 1999; Hutchby & Tanna 2008: 146; Beisswenger 2008; Meredith et al. 2021). Therefore, the central property associated with the notion of TCU – its projectability – is not applicable in digital, written interaction. This does not mean that messages could not be analysed as being composed of TCUs, that is, recognisable linguistic units performing social actions that can make relevant specific types of next actions (such as questions, answers, requests, offers, etc.).

Considering the relationship between the concepts of TCU or turn and a message/post, it is clear that they need to be distinguished. This is because evidently writers can include one or multiple turns or TCUs in one message (Markman 2013: 542–543). Attention can thus be paid to the *internal*

composition of a message and whether it contains either several units or a single TCU. A multi-unit turn composed as one message has been termed a ‘package-text’ by Hutchby and Tanna (2008). They observe that each of the multiple TCUs and actions can be “treated sequentially implicative in its own right” (ibid. 153; see also König 2019a: 614). For example, this means that within the same message, a writer can greet, ask a question, make an announcement and thus make use of the “extended occupancy” instead of having to produce their contribution bit by bit, “by the temporal unfolding of turn constructional units” (Hutchby & Tanna, ibid.).

Another, opposite strategy is “a simple format”, where only one action is produced within the message (Hutchby & Tanna 2008: 146–147). For this format, a multi-unit turn is produced over the course of several messages. The literature refers to this strategy of posting several individual messages as ‘chunking’ (Baron 2013; Markman 2015; König 2019a) or ‘incrementing’ (Marmorstein, this volume). The outcome of this strategy is a ‘message-succession’ (Marmorstein, this volume). It has been argued that in contrast to traditional text-messaging that favours a multi-unit “package”, a more common strategy in internet-based WhatsApp dialogue is to send a series of individual postings with one action (or action component) per message (König 2019a: 614). Indeed, prior research has shown considerable interest in the writer’s choice to “package” versus to “chunk” when designing their multi-unit (and multi-action) contributions. Chunking can be associated with a fast tempo of texting. This is the case in Extract 1 (see Koivisto, this volume) that involves several short messages by the same participant including a proposal (message 1), a request for information (message 2), which is actually a prerequisite for presenting the original proposal, and a request for confirmation (message 3). These are produced bit by bit, giving an impression of a lack of advance planning.

Extract 1 (Amateur theatre)

1	18.11.22	Ilona	Kulma??	<i>Kulma??</i>
2	18.11.31	Ilona	Onx se vielä auki	<i>Is it still open</i>
3	18.11.36	Ilona	Eiks se oo	<i>It is, isn't it</i>
4	18.11.43	Elsa	onse	<i>itis ((written as one word))</i>
5	18.11.45	Ilona	Nice	<i>Nice ((in English))</i>
6	18.11.48	Ilona	Tulkaa sinne	<i>Go there</i>

A single-unit message (in a series) can have different syntactic-actional relationships to the surrounding messages by the same writer. Extract 1 presents a series of syntactically complete contributions. However, a contribution (and a syntactic whole) can also be divided into several messages such that the appropriate “place” (a TRP, if you will) for the sequentially next turn (message) occurs only after the last message of that series (cf. Baron 2013, Spagnolli et al. 2021). In a series such as this, each message can be designed as an incomplete turn, effectively splitting the TCU(s)

(Tudini 2015); Spagnolli et al. (2021) refer to these as ‘installments’. These incomplete TCUs or installments can therefore be characterised as forward-oriented (Tudini 2015: 651). This practice has been shown to possibly prevent intervening messages by co-participants; participants consequently orient to the incompleteness of a turn that expands over several messages. Marmorstein (this volume) describes a practice in WhatsApp messaging that involves a message containing an incomplete opening message (such as “sayy” or a term of address or a greeting), referred to as an “individuated opening”, being used to frame a forthcoming action or to merely invite the attention of the co-participant and check the availability for interaction. This shows that while a WhatsApp exchange does not have to be coterminous or focused (cf. Hutchby & Tanna 2008: 144) and the participants do not need to be logged in at the same time (cf. Markman 2013: 539), the participants may still have a tendency to interact as synchronously as possible.

Besides splitting TCUs across messages, writers can also recomplete or extend a “possibly complete online TCU-posts” (Tudini 2015; see also Baron 2013 on ‘utterance break pairs’). This can be conceived of as occurring in the “transition space”, that is, before anyone has responded. This is a practice that clearly resembles *incrementing* in spoken interaction, which means extending a prior TCU in terms of syntax and action after its possible completion to create a new transition relevance place (Ford, Fox & Thompson 2002; Couper-Kuhlen & Ono 2007). Furthermore, the syntactic formats (such as adverbial clauses, and independent NPs) resemble those reported for spoken interaction (Tudini 2015). The following extract from a Finnish WhatsApp group chat provides an example (Extract 2). In it, Karo extends her just-prior message by adding an adverbial clause (‘as long as this headwind allows me’, message 5):

Extract 2 (Amateur theatre)

1	13.53.11	Karo	Tulisko joku skidisti neljän jälkeen syömään kulmalle? 👤	<i>Would someone come slightly after four to eat at kulma? 👤</i>
2	14.27.53	Satu	Mä varmaan tuun kyl!	<i>I’m probably coming!</i>
3	14.54.32	Kalevi	Mie oon nyt kulmalla	<i>I’m at kulma right now</i>
4	16.05.52	Karo	Iha just kulmal!	<i>Will be at kulma in a sec!</i>
5	16.06.01	Karo	Kuha tältä vastatuulelta pääsen	<i>As long as this headwind allows me</i>
6	16.08.51	Satu	Oon täs pitkissä pöydissä heti kassojen vieres	<i>I’m at the long tables right after the registers</i>
7	16.09.15	Karo	Jees!	<i>Alright!</i>

To summarise, writers have the option of using a range of message constructions by either packaging several linguistic units and action components (TCUs) into one message or alternatively, by chunking their multi-unit contributions into several messages. This is evidence that

differentiating between the concepts of TCU/turn and message/post is necessary and warrants further exploration. Moreover, while the central characteristic of the concept of TCU – projectability – is not applicable to text-based interaction in a strictly temporal sense, participants can create a projection of more to come by splitting a single TCU so that a message contains a syntactically incomplete turn. This practice of projecting continuation functions as an invitation for active, simultaneous online participation (see also Marmorstein, this volume), which indicates that the preferred style or mode of chatting can closely approximate synchronous communication.

3 Aspects of turn design and sequentiality in text-based interaction

The many forms of digital interaction have opened up new avenues for the study of turn design, linguistic practices as well as for the management of sequences and larger activities. The focus of this section is on text-based interactions. We consider the types of complications created by the properties of these digitally mediated contexts in understanding turn design and sequential embeddedness. More specifically, we discuss 1) how linguistic practices of spoken interaction become adapted to messaging interaction and how technologically-afforded novel practices are employed, 2) how non-synchronous digital interaction encourages to produce lengthy and structurally complex contributions and the challenges for methodology that lie therein, and 3) how polymedia, that is, the employment of several mediums in parallel, affects the way in which individual contributions can be analysed and interpreted sequentially.

3.1 OLD, NEW AND BORROWED: SEQUENTIALITY AND INTERACTIONAL PRACTICES

From the viewpoint of Conversation Analysis applied to digital interaction, an omnipresent question is how practices of spoken (or pre-digital) interaction are utilised and adapted to digital interaction and to what extent interactants develop new practices that stem from the affordances of a specific platform (Marmorstein & König 2021; see also e.g., Zitzen & Stein 2004; Meredith & Stokoe 2014). Below, we provide examples of some novel and adapted practices related to message construction, sequentiality and linguistic resources that are used to frame a contribution.

A characteristic of messaging platforms is message permanence; if the messages are not archived permanently, they are accessible for at least some time. An early finding, as reported by Black et al. (1983), was that this feature encourages participants to initiate and advance multiple sequences in parallel and in multi-party settings, even to engage in several discussions within one common message feed. Later studies have examined in more detail how the existence of multiple lines of activity shapes the design of turns in chat and messaging (e.g., Werry 1996; Örnberg Berglund 2009; Markman 2013).

For example, the participants in contemporary mobile group messaging routinely respond to two (or even more) prior turns consecutively (Virtanen et al. 2021). When they respond in this manner, participants may either divide their answers into two (or more) messages or deliver two (or more) answers within one message. If the participant employs engages in ‘turn-splitting’ – the separation and allocation of responses to their own messages – the implication is that the responses belong to different lines of activity. The opposite practice of multiple responses in a single message, referred to as ‘packaging’ (see previous section), serves to highlight the connectedness of the responses, as in the terms of the action they accomplish. These different options attest to how interactants flexibly employ the possibilities of the *message* as a basic unit of transmission (see also the previous section). Obviously, having these two alternatives available as a resource is a “novel” interactional practice in the sense that it is based on a technological feature of the platform.

When analysing how parallel activities are managed on messaging platforms, we can detect that linguistic resources are used in an adapted way. For example, Virtanen et al. (2021) demonstrate that when the same participant responds to two (or more) prior turns in the feed, the writer typically posts the responses so that the latter one is prefaced with the particle ‘and’. ‘And’-prefacing suggests that both responses were pending and that they belong to the same ‘response agenda’. In other words, ‘and’-prefacing contributes to maintaining coherence between successive responses that are more or less unrelated in terms of their topic and/or action. (Ibid.) For spoken interaction, ‘and’-prefacing has been described in a related manner as a resource which enables the speaker’s turn to connect to an overarching institutional agenda or a larger frame of activity and consequently, to create coherence (Sorjonen & Heritage 1994; Neville 2006). However, prior studies of spoken interaction have not identified ‘and’-prefacing practices related to managing multiple responses and thus managing parallel sequences. In short, as a design feature, ‘and’-prefacing is a prime example of the adaptations or reconfigurations that “pre-digital” linguistic practices can undergo when transferred to non-synchronous digital environments (see, Marmorstein & König 2021: 1).

Besides the management of parallel activities, sequential connections that occur in text-based interaction are generally maintained with linguistic resources that are to some extent used similarly in spoken interaction. That is, in text-based interaction, we also find elements that project the type and shape of the upcoming turn and show how the turn relates to the previous contributions (cf. Schegloff 1987, 1996; Kim & Kuroshima 2013; Heritage & Sorjonen 2018). Besides the message-initial ‘and’, we can also consider other discourse particles that occupy the message-initial position (on turn-initial particles, see, e.g., Heritage 2013, Heritage & Sorjonen 2018; Vepsäläinen 2019). Let us consider greeting words as an example. Marmorstein (this volume) demonstrates that greetings and other openings are not necessarily needed in mobile messaging to establish contact. That is, participants orient to messaging as being in a “continuing state of incipient talk” (Meredith 2019: 251; cf. Schegloff & Sacks 1973). When greeting words *are* used, they develop

new uses that can be traceable to the “original” uses. Greetings that occur in the sequence initial position are also typically disjunctive and serve to mark the message as not continuing the previous interaction but as opening a new one. When used in a non-sequence-initial position, a greeting displays renewed availability and can therefore be used to account for temporary unavailability or absence when rejoining the conversation. Marmorstein suggests that this use relates to the meaning of availability that is present in greetings, constituting a trace of their “original” use.

As yet another example, Virtanen et al. (2021) observe that the Finnish word *hei*, which is not only known as a greeting word but also as an attention-getting device (Pihlajamaa 2019), has acquired new uses in group messaging. The word *hei* can be used to introduce an immediate concern, which then initiates a new (possibly parallel) line of interaction. While this use is clearly an adaptation to multi-party messaging in which several spans of interaction can co-exist, it also has its “roots” in spoken language where attention-getters launch new courses of action and redirect talk (see e.g., Sidnell 2007: 392; Norrick 2009: 881–882).

Together, the practices discussed above demonstrate that, as Marmorstein and König (2021: 1) note, text-based dialogues “are not ‘digitised conversations’ reproducing ordinary conversations on a screen. Rather, they are a different kind of interaction that involves its own conditions of production and interpretation”. Furthermore, our case examples demonstrate that non-synchronous digital interaction has given prominence to phenomena of sequential organisation in which connections to more or less distant prior turns are prevalent and where multiple lines of interaction are routinely managed in parallel. This contrasts with how interaction is organised and understood in fully synchronous settings where the premise is that there is a connection to the immediately prior turn (see, Schegloff 2007) and where topics and sequences can be changed, suspended, or returned to (e.g., Couper-Kuhlen & Selting 2018: 342–353) but not so much advanced in parallel.² These complex sequential configurations create pressure for the interactants to develop new and adapted means to index sequential connectedness and separation, as demonstrated by our case examples of turn-splitting, ‘and’-prefacing, greetings, and attention-getters.

3.2 IS IT INTERACTION? THE PROBLEM OF LENGTHY TURNS AND MONOLOGUES

Another characteristic feature of sequentiality and turn design in non-synchronous digital interaction is that contributions can be lengthy and structurally complex, particularly in environments such as e-mail exchanges, discussion fora, (video) blogs as well as in the comment sections of online newspapers. Indeed, the interface design of text-based platforms encourages longer contributions because the text field is typically considerably larger than offered in messaging applications. Moreover, as the production of lengthy turns in non-synchronous settings cannot be based on real-time monitoring of the recipients’ displays of non/understanding (such as gestures

and facial expressions), the writer has to write “on the premises of the reader” (Rommetveit 1974: 63) and in accord with what can be “reasonably assumed that the reader knows and expects” (Nystrand 1989: 75). This is particularly applicable to opening posts where there is no local prior discussion (see e.g., Stommel & Koole 2010; Giles 2016). An additional point is that opening posts often do not receive any responses. However, As Meredith et al. (2021: 7) observe, this lack of uptake does not wholly prevent them to be analysed as “interactional”: the posts are nonetheless recipient-designed. That is, they reveal how the poster orients to the recipient/audience and the social situation. However, this type of analysis cannot rely on the ‘next-turn proof procedure’ (Sacks, Schegloff & Jefferson 1974), which is a step away from the methodological foundations of CA.

As a consequence, the CA-informed analysis of lengthy turns exhibits similarities to textual analysis (TA), which has a long tradition of analysing the organisation and interactional features of singly-constructed texts (see e.g., Nystrand 1986; Hoey 2001; Martin & Rose 2008). In addition, while it has been demonstrated that CA offers powerful tools for ascertaining the joint accomplishment of sequentiality between turns, CA researchers have focused less attention on the composition of multi-unit turns and monologue.³ This is possibly due to the classic take on turn-taking and turn constructional units (Sacks et al. 1974) emphasising that speakers are entitled to one TCU at a time after which the transition to the next speaker becomes relevant. The analysis of multi-unit turns then has focused on resources through which speakers project more talk beyond the first TRP (e.g., on list constructions, *if-then* clauses, and story prefaces, see Schegloff 1982; Lerner 1991) and how speakers prevent a transition to the next speaker at the first TRP (e.g., “rush-throughs” see Schegloff 1982; 1996). As an attempt to combine the insights of CA and TA in the analysis of blog posts and reader comments, Virtanen and Kääntä (2018) investigate sequentiality both within and between turns. Their specific focus is on employ the tools of genre analysis (e.g., Martin & Rose 2008) to analyse the overall structure of the opening posts, and applying methods of CA to study how, and in which respects, the posts are then taken up in the comments. In a similar vein, Frobenius (2014) has investigated both the monological organisation of video blog posts and the responsive relations constructed in the viewer comments. These studies, as well as others, highlight the importance of “bespoke modes of analysis” (Giles et al. 2015: 45) to acknowledge the multi-faceted nature of interactivity in digital environments.

A more dynamic approach to the composition and design of text-based messages of varying lengths is to examine how they are constructed stroke by stroke by collecting screen-view data in video format (on transcription, see Meredith 2016). In particular, the various ways in which messages are edited prior to transmission can be symptomatic of the writer’s interactional concerns. For example, Salomaa and Lehtinen (this volume) demonstrate how participants in online workplace interaction orient to the ‘emotional order’ (Stevanovic & Peräkylä 2014) of the organisation by replacing an intense verbalisation of emotion by a more neutral one during the process of message construction. They support their findings by demonstrating the

occurrence of similar neutralising self-repairs in spoken turns.⁴ Another study by Meredith and Stokoe (2014) show how participants in casual messaging extensively modify, alter and adjust their messages – including emoji choices – before transmission and, in doing so, display their orientation to how the design of their turn “might accomplish a specific action or outcome in projecting a particular response” (ibid. 194). Although the stroke-by-stroke construction of messages is not typically accessible to the recipient, video data of message construction may nevertheless offer important insights into the participants’ orientation to interaction in non-synchronous settings.

3.3 MISSING TURNS: SEQUENTIAL ANALYSIS IN POLYMEDIA ERA

Finally, we would like to discuss aspects of the sequential organisation related to the concept of ‘polymedia’ that was introduced by Madianou and Miller (2012) within the framework of communication and cultural studies (see also Androutsopoulos 2021). In short, the notion shifts the analytic focus from single platforms and technologies to whole ecologies of communicative opportunities. For example, interaction between friends and family can take place in, and alternate between, physical settings, instant messaging applications, audio and video calls, social media sites and so on and so forth. Importantly, the choice among channels and media for communication can be socially meaningful and consequential in many ways. For example, in 2006 the then prime minister of Finland captured the attention of both the national and international press after allegedly having ended a relationship by sending a brief SMS (see Laine 2010). With regard to the micro-analytic perspective of CA, the consequences of polymedia can manifest themselves in a highly concrete manner. Extract 3 demonstrates a case concerning a member of an amateur theatre group posting a WhatsApp message in which she returns to a discussion about a plan to go see a film together. This message is the first and only mention of the film in the logfile.

Extract 3 (Amateur theatre)

1	17:58:19	Jarkko	Anteeksi, mutta tulen myöhästymään vähän 😊	<i>Sorry to say, but I'm running a bit late 😊</i>
2	21:37:55	Reeta	31.1 treenipaikka vaihtunut [place] ja varausmahdollisuuden takia 6.2 treenit peruttu, tilalla 8.2. (tämä on päivä ennen läpäreitä, kyllä) treenit 17-21 [place]	<i>Rehearse place for 31 Jan changed to [place] and due to a possibility of overlapping booking, 6 Feb rehearsals are cancelled and rescheduled to 8 Feb (this date is one day before the go-through, yes) 5-10 pm at [place]</i>

3	22:45:31	Fanni	A star is born menis nyt ainaki pe ja la [cinema] klo 18:10? onks kaikilla jo tää viikko täynnä?	<i>A star is born would be on [the cinema] at least on Fri and Sat 6.10 pm? is everyone already booked up for the week?</i>
4	22:48:19	Elli	Lauantai oisko? 🤖	<i>Saturday maybe? 🤖</i>
5	22:49:35	Annu	Molempiparempi 🤖	<i>Both good 🤖</i>

In message 3, Fanni first informs the others about the showtimes of a specific film in the coming weekend and then inquires whether everyone has their week already booked. An important aspect of this turn design is that it suggests that there has been prior discussion on the topic and a tentative joint decision has already been made to go to see this specific film together (cf. Koivisto, this volume). That is, Fanni does not inquire whether the recipients would like to go to the cinema and see this specific film but merely reports the showtimes. The informing ends in a question mark, which indicates that the informing also functions as a proposal that makes responses relevant. Elli and Annu treat the proposal as adequate (and not underspecified) by taking a stand on the proposed times (messages 4 and 5).

The lack of mention of the film previously in the logfile suggests that the message carries a ‘transmedia trace’ (Androutsopoulos 2021: 711–712) that indexes and thematises interaction in another environment, perhaps in an offline setting. Marmorstein (this volume) refers to these types of messages as ‘extensions from outside’ – that is, “messages that do not initiate a dialogue but extend to WhatsApp interaction that went on – or is still going on – in a different co-present or mediated setting”. These types of observations of on/offline interconnections encourage us to adopt a more holistic approach particularly to mobile interaction and to examine systematically its integration into everyday interaction such as from the perspective of specific actions and activities (see also Androutsopoulos 2021).

4 Multimodality in digital interactions

Multimodality has been one of the focal areas of CA research during the 2000s. It has highlighted the importance of bodily conduct (such as gaze, gestures, and body posture) in physically co-present social interaction. Multimodality also expanded the analytic interest to address such phenomena as the manipulation of physical objects (e.g., Goodwin 2000, Mondada 2014; Neville et al. eds. 2014; Fox, Mondada & Sorjonen eds. 2023), including digital devices (e.g., Oloff 2021). In this section, we briefly review the various ways in which multimodality is present in digital interaction, both spoken and text-based, and how they can be analysed from the perspective of social action. We first discuss aspects of video-mediated interaction and subsequently turn to the multimodality of mobile messaging and social

media interactions. Although we discuss various forms of multimodality in a number of different settings, it goes without saying that our treatment is selective and limited in scope.

4.1 DEALING WITH VISUAL BOUNDARIES: MULTIMODAL PRACTICES IN VIDEO-MEDIATED SETTINGS

As the personal, professional, and recreational video communication applications have proliferated and diversified during the past 10 or 15 years (see e.g., Harper, Watson & Licoppe 2018; Due & Licoppe 2020), the multimodal organisation of interaction in video-mediated environments has received increasing scholarly attention. Prior studies have reported that participants exploit and orient in various ways to the affordances and restrictions of the applications and technologies that support audiovisual connection more or less steadily. For example, Rintel (2013) emphasises that categories such as ‘technical trouble’ and ‘disruption’ need to be very carefully applied in these settings because they are not necessarily a participant’s concern. For instance, video distortions that cause frozen facial expressions can simply be let pass – not treated as interactionally relevant, if the audio channel is still functional – or used creatively for parody or tease. Thus, it is important to remember that “technology frames but does not determine social action” (ibid. 3343; see also Hutchby 2001).

As an overarching feature of video-mediated interaction, participants have been observed to display orientation to the visual talking heads arrangement (such as a headshot) as the default frame for video interaction. That is, departures from it (such as shots of one’s environment) are treated as accountable actions and inspected by others for relevance (Licoppe & Morel 2012). However, as the video-mediated participants can only monitor the part of each other’s environment that is on the visual field of the camera, there is evidence that showings of objects and physical settings constitute an important part of multimodal video-mediated interaction. Showings can be accomplished either by bringing objects to the camera or by manipulating the camera (e.g., Licoppe & Morel 2014; Licoppe 2017; Virtanen & Niemi, this volume). As argued by Licoppe and Tuncer (2019), showings make visible the participants’ attentiveness to the visual boundaries of the video shot and objects or settings that co-participants can or cannot see. In addition to showings of the physical space, many of the current video communication applications offer a screen sharing feature that enables the on-screen domain to become an interactional environment in which technology-mediated shared tasks can be accomplished (Heinonen, Niemi & Kaski 2021; Olbertz-Siitonen & Piirainen-Marsh 2021).

With regard to embodied resources, compared to their affordances in co-present interaction, the functional scopes of gaze and pointing gestures are restricted in video-mediated interaction (see e.g., Heath & Luff 1993; Due & Licoppe 2020). For instance, eye contact cannot be achieved, which means that next speaker selection in multi-party settings has to be done verbally, although some innovative embodied practices have been detected (see e.g., Hjulstad 2016). In the screen sharing mode, mouse cursor movements have

been demonstrated to serve similar functions as pointing gestures (such as doing referential work) but they can also serve more elaborate functions (such as soliciting responses and making decisions on the next actions in the shared user interface) (Olbertz-Siitonen & Piirainen-Marsh 2021). This, in turn, is a textbook example of a technical user-interface feature being “transformed into an interactive resource for managing participation and distributing agency”, thus highlighting the distinction between pre-designed and user-initiated technological affordances (ibid. 19; see also Arminen, Licoppe & Spagnolli 2016).

As our last point in this section, we would like to return to the distinction between synchronous and non-synchronous interaction (see Section 2) because this introduces an additional aspect to the analysis of multimodal interaction. For example, messaging applications typically offer the user different channels or modes to select from (e.g., text, audio, video; on voice messages, see König 2019b). However, despite the choice of mode, interaction remains in the non-synchronous “posting” mode, in which the key interactional unit is the message in the chronologically ordered feed. As an opposite example, let us consider video conferencing and live video streaming systems that also include a chat area. For these environments, fully synchronous video-mediated communication is combined with an additional possibility for non-synchronous text-based communication. As prior studies have demonstrated, novel interactional practices have emerged in these environments to utilise and adjust to the parallel existence of two highly different modes of participation. For example, Licoppe and Morel (2018) demonstrate that Periscope live video streamers routinely adopt a “read-aloud and response” practice when (selectively) responding to the viewers’ comments in chat and managing the issue of addressivity (see also, Salomaa & Lehtinen, this volume).

During video calls and video conferencing, by contrast, participants have been observed to resort to text-based chat as in initiating a side-sequence (in multi-party settings), providing technical information (e.g., a hyperlink or a phone number), or reporting technical issues (Sindoni 2019: 2–3 and references therein). This means that non-synchronous chat often appears as a peripheral mode in environments where synchronous participation is available for all (see also Rosenbaun, Rafaeli & Kurzban 2016). Even so, the specific nature of the interaction (e.g., casual conversation vs. online class; cf. Gibson 2014) can affect the division of labour between the modes. As Virtanen and Niemi (this volume) demonstrate by examining data from remote workshops, participation in a specific mode (e.g., video) can also be subject to the situated negotiation of the relevant or preferred forms of mediated presence.

4.2 MULTIMODALITY IN TEXT-BASED INTERACTION: INTER-ACTIONAL AFFORDANCES OF GRAPHICONS AND PUNCTUATION

In text-based (or visuo-verbal) interaction, written language is likewise accompanied by other resources through which participants organise their actions. Additional resources include, to name only a few, emojis and other

graphicons (e.g., Al Rashdi 2018; König 2019a, this volume), hashtags (Zappavigna 2014; Nurmikari, this volume), GIFs (Tolins & Samermit 2016; Salomaa & Lehtinen, this volume) as well as selfies and other photographs (Georgakopoulou 2016). In addition, text-based interaction has also highlighted the interactional affordances of punctuation (Androutsopoulos & Busch 2021; Busch 2021). As Busch (ibid. 1) states, “[w]hen punctuation is deployed in an interactional mode, it structures primarily neither intonational patterns nor grammatical patterns, but interactional patterns such as shaping sequential organisation and stance-taking”. Together or individually, these multimodal resources as well as many others, can be mobilised to accomplish recognisable social actions in specific sequential and interactional contexts. It is important to note, however, that each platform is a medium of its own and multimodal affordances differ across platforms, which can impact multimodal practices as well as the generalisability of the findings (see, Mlynář et al. 2018: 7).

Perhaps the most extensively studied multimodal features of text-based interaction are emojis and their predecessors, character-based emoticons such as :-). In part, these have been associated with compensating paralinguistic cues and the lack of embodied conduct (e.g., Crystal 2006; Derks et al. 2008; Meredith 2014; Petitjean & Morel 2017; König 2019a; Busch 2021; Meredith et al. 2021). That said, it should be noted that emojis and other graphicons are not directly comparable to aspects of spoken interaction such as a speaker’s tone of voice or facial expressions, since their use is arguably more intentional (Salomaa & Lehtinen, this volume). However, it is safe to say that emojis and other visual resources typically serve as contextualisation cues (König 2019a; Meredith 2019), guiding the recipient to interpret the message in a certain manner, for example as playful and not serious. Emojis can also help structure a message or create a link to a previous one (Al Rashdi 2018; König 2019a: 159–160). Meredith (2014; 2019: 252) highlights the importance of the emoji position, noting that when it occurs at the end of one’s message, it indicates the stance of one’s own message and when it is posted at the beginning of a message, it indicates how the previous message has been received.

While iconically conveying the writer’s emotional reaction or stance, emojis have been shown to be linked to several types of conversational actions such as compliments, thanking, openings and closings, and approvals of others’ messages (Al Rashdi 2018). That is, they do not simply express emotions or replace the missing facial expressions; in fact, it has been suggested that they have acquired conventionalised, symbolic meanings besides those that are iconic (König 2019a: 159). However, few studies have been conducted by CA researchers on emojis. The chapters in this volume demonstrate how emojis can be involved in the action-formation of responsive messages. For instance, a raising hand emoji can function on its own as an affirming/confirming response (see König, this volume; Koivisto, this volume). König argues that simple confirmations may be produced by using a response particle only (e.g., the German *ja*), with a response particle and an emoji (e.g., *Ja* 🙌), or a emoji alone (e.g., 🙌). König also demonstrates that some emojis can “boost”

agreement (e.g., 🤝), while others create, together with vowel lengthening (<jaaaa>), a cheerful or enthusiastic tone (e.g., 😊). In other words, emojis can be combined with other resources (mimicking the resources of spoken language) that together create the stance of the message.

The interplay of verbal and visual resources can be further demonstrated by examining the short extract of Finnish messaging interaction provided in Extract 4. The extract comes from a WhatsApp group of an amateur theatre group. In message 1, Emma – one of the directors of the group – announces that a song titled "Credo" cannot be used in the theatre production. This announcement triggers several emotional responses from others.

Extract 4 (Amateur theatre)

1	14:14:10	Emma	Kaikille tiedoksi, Credo ei saada käyttää, uusi biisi valitaan huomenna	<i>Attention everyone, we cannot use Credo, a new song will be chosen tomorrow</i>
2	14:14:53	Ilona	😊❤️ eeih!	😊❤️ nooo!
3	14:16:32	Satu	Ihanaa kun ihmiset vastaa tälle ajoissa noihin lupakyselyihin... Tsemppiä valintahommiin!	<i>Isn't it nice that people respond to those permission requests on time... Good luck choosing the new one!</i>
4	14:28:12	Tiina	😊😊	😊😊
5	14:29:11	Karo	Eikä.....	<i>Oh no.....</i>
6	14:29:13	Maukka	😊	😊
7	14:30:04	Emma	Joo tää on aika pulssia nostattava tilanne, mut me selvitään kyllä tästä ja varmasti saadaan timanttinen biisi tilalle! 🎭	<i>Yeah this is quite a nerve-racking situation, but we'll come through and surely get a fantastic song as a replacement! 🎭</i>
8	14:34:10	Tiina	Ihan varmasti saadaan, tsemppiä! 😊	<i>Certainly we will, good luck! 😊</i>
9	14:34:34	Satu	Ihan varmasti, ei onneks oo koreobiisi :)	<i>I'm sure we will, luckily it's not a choreo song :)</i>
10	14:36:10	Karo	Se vielä puuttuis 🤖	<i>That would be the last thing we need 🤖</i>
11	14:36:19	Karo	Tsempit 🤝❤️	<i>Good luck 🤝❤️</i>
12	14:42:19	Ella	No voi helveti... 😞	<i>Oh damn... 😞</i>
13	14:48:36	Tara	Jep meillä on huippu musapäälliköt, löydetään varmasti joku hyvä ratkaisu 🤖	<i>Yup we've got top music directors, we'll surely find a good solution 🤖</i>

Firstly, the announcement itself is not formulated as bad news (see Maynard 2003). In other words, it does not entail any valenced adjectives or emojis to set or verify its status as bad news. However, the following responses (messages 3, 4, 5, 6, and 11) orient to the announcement as such. As we can see, a message can be constructed through a combination of written language and emojis (and other types of graphicons) or solely with either one. In messages 4 and 6, Tiina and Maukka use sad or crying emojis without any written contribution. It can be said that these function as sufficient responses on their own while also attributing a negative valence to the piece of news. Karo posts a negative response cry in message 5 ('oh no') and this is accompanied by ellipsis dots (five altogether). According to Busch's (2021: 7) analysis on WhatsApp data, ellipsis dots do not typically indicate syntactic omission but rather allude to "some shared culturally or personally shaped background knowledge without making it explicit" (cf. Koivisto 2013). For this example, the ellipsis dots appear to contribute to the depth of the emotion conveyed – thus acknowledging the meaning of the initial announcement – while also displaying empathy. The same applies to message 11, which is some kind of an empathetic exclamation, strengthened by the use of a "confounded face" ('oh damn... 😞'). The function of the emoji as strengthening the verbal expression of emotion is also detectable in the surrounding messages involving different types of emotion. For instance, positive emojis are attached to messages that contain a verbally expressed optimistic projection (Jefferson 1988) of the ongoing crisis (e.g., messages 7, 8 and 9). Furthermore, the extract reveals that several emojis can be utilised to further intensify the emotion (as in messages 2 and 4) or to introduce different (shades of) emotions. In message 11, Karo includes in her wish ('Good luck') both by "flexed biceps" (💪) and a heart (❤️) emoji, arguably to indicate both the fact that the crisis can be defeated and to convey a sense of compassion.

4.3 MULTIMODALITY IN SOCIAL MEDIA: THE CASES OF SELFIES AND LIKES

A pervasive multimodal feature of social media is the use of selfies and other forms of 'social photography' (Zappavigna 2016) to share experiences and maintain social relationships. Social photographs range from naturalistic snapshots of everyday life to stylised selfies and 'memes'. In particular, selfies and memes are "omnirelevant" photographic actions in many social media environments – they do not need to be motivated or accounted for (see e.g., Virtanen et al. 2021: 5). While meaning-making through photography in digital environments has already been examined in neighbouring fields such as social semiotics (e.g., Zappavigna 2016; Poulsen 2019), there are few CA studies on this topic to date. In particular, there is a lack of systematic analyses on how photographs can contribute to the key aspects of turn design (sequentiality, action formation, recipient orientation; see Drew 2012). Some first steps have, however, been taken in this direction. For example, Georgakopoulou (2016) combines sociolinguistics with CA to

examine interaction around selfies among adolescents on social networking sites.

Georgakopoulou (2016) distinguishes between three selfie types: i) ‘me’ selfies (i.e. profile selfies), ii) significant other selfies, and iii) group selfies. Her findings demonstrate that ‘me’ selfies are typically carefully filtered, edited, and designed, which suggests that they are ‘performances’ (Bauman 1986), that is, displays of artistry and skill. This means that ‘me’ selfies are typically responded to by ritual appreciations, that is, “positive assessments of the post and/or poster, expressed in highly conventionalised language coupled with emojis” (Georgakopoulou 2016: 301). In comparison, the other selfie types highlight interpersonal relationships as their photographic design feature. Thus, they display orientation to the other photographed participants and project a response that conveys “knowing participation” (i.e., knowledge from offline, pre-posting activities) and thus, a validation of the post. (Ibid.) Future CA-informed research could expand to also cover other forms of everyday photography, such as snapshots of objects and locations, and examine their potential in designing turns to accomplish casual actions such as newstellings, direction givings, and responses of different types.

Some aspects of multimodality on social media can be more difficult to analyse with CA methods. A good example is the *Like* response feature available on many platforms. As West (2015: Chapter 4) demonstrates, *Like* can be used to display affiliation and/or alignment when responding to newstellings, polar questions, invitations, etc. West (ibid. 61–62) argues that *Like* “allows for quick backchanneling on content in the newsfeed without positioning the Liker as an active participant in any further development of a post”. Nonetheless, one problematic matter for CA is that social media sites typically present multiple *Likes* on the same post as a batch (e.g., 123 *likes*). In other words, *Likes* are not amenable to sequential analysis vis-à-vis each other, let alone other responses.⁵ It can, however, be argued that this technological feature positions the multiple *Likers* to form a collective voice and, further, allows a shared appreciation of other’s conduct in a manner that has points of resemblance to collectively performed actions in face-to-face environments, such as clapping, booing and cheering (cf. Clayman 1993; Lerner 2002; Pfänder & Couper-Kuhlen 2019).⁶

Hashtags can also be used similarly to affiliative resources that do not create a sequential relation to a specific prior turn but an “ambient” social bond with a mass online audience (Zappavigna 2014; see also Nurmikari, this volume). As a consequence, we would not go as far as Meredith (2019: 253) in warning that “there may be aspects such as ‘likes’ or ‘upvotes’ that are not easily analysable in any meaningful way using CA”. However, we can concur that not everything in text-based interaction offers itself for sequential analysis – and this also applies to spoken interaction.

5 *Participation practices in digital interaction*

This section focuses on aspects of participation that occur in different digital settings. In general, participation refers to the verbal and non-verbal practices that participants use to negotiate their alignments with regard to each other (Goodwin & Goodwin 2004). Moreover, as each exchange unfolds through time and takes place in a specific physical or virtual setting, time and space are elementary dimensions of participation. The main interest of CA is how (and to what ends) participants themselves display orientation to these dimensions. In digital interaction, an additional aspect of participation is human-machine interaction and specifically the ways in which human participants orient to machines as co-participants. The following subsections address the forms of participation in digital settings (5.1) and the various ways that time and space can be made relevant in digital interaction (5.2).

5.1 PARTICIPATION IN TEXT-BASED SETTINGS AND IN HUMAN-MACHINE INTERACTION

In the CA tradition, the question of participation has often been approached by using Goffman's (1981) notion of participation framework, which refers to the different participatory roles that people can adopt in social encounters (see also Levinson 1987). In CA, the idea of participation framework, although acknowledged for its merits, has been generally criticised for not considering mutual reflexivity and the underdeveloped role it assigns to the hearer (Goodwin & Goodwin 2004; Goodwin 2007). Within CA studies, participation is treated as situated practices that are negotiated and re-negotiated in the ever constantly evolving conversational contexts.

We begin this sub-section by presenting some observations on how reciprocity is managed and negotiated in text-based interaction. Goffman's (1981: Chapter 3) typology of reception roles becomes particularly useful in the analysis of public online forums that typically display features of both interpersonal communication (that is, with specific individuals) and mass communication (as with large audiences).⁷ According to this typology, recipients can be either 'ratified' or 'unratified'. The ratified recipients, in turn, can be oriented to as either 'addressed recipients' to whom the talk is directed to as well as from whom a response is expected, or as 'unaddressed recipients' who have the right to respond if they will. The unrati-fied participants are either 'overhearers' who by chance hear the talk, or 'eavesdroppers' who intentionally try to overhear. (Ibid.)⁸

Discussions in message boards and social media sites (such as Facebook and Twitter) are typically open to a large number of people, often to anyone with internet access. This creates a rather unique and complex participatory situation, which may vary according to the distinctive features of the platform, such as YouTube (Dynel 2014), Facebook (Eisenlauer 2013, 2014; van Hooijdonk & van Charldorp 2019), and discussion boards (Vayreda & Antaki 2009; Haugh & Chang 2015; Giles 2016). After a contribution is posted, it may or may not receive replies from its audience. A study conducted

in the field of Pragmatics by Dynel (2017) suggests that, depending on the audience uptake, public online discussions contain two types of participation frameworks. The first is the receiver-to-receiver (members of the audience who discuss the posting) and the second is the receiver-to-producer (members of the audience who respond to the poster). In many instances, both types of participation can occur within the same discussion, and this may vary from one platform and medium to another. According to Bolander (2013: 106), readers of blogs predominantly (74%) respond only to bloggers and disregard other reader comments.

An opening posting in a discussion forum or social media site is usually not directed to anyone in particular but to a collective public audience (e.g., Vayreda & Antaki 2009). Nevertheless, a response may still be expected or even sought after. For instance, in advice-seeking forums opening posts typically end with a request for help or advice (Vayreda & Antaki 2009). On Facebook brand pages, by comparison, the brand posts are often designed to make several types of (positive) responses conditionally relevant; this is apparent in the varied ways the respondents display orientation to the opening post as an initiation (Van Hoojdonk & van Charldorp 2019). Importantly, through the design of their turns, respondents also display their alignment to the participation framework activated in the opening post. For example, although contributing to the discussion, a responder can treat themselves as a mere 'side participant' whose response is less relevant for the on-going discussion, for instance, due to a lack of personal experience on the topic (see, Haugh & Chang 2015: 112). Likewise, responders can question the status of the original poster as a ratified participant by categorising the poster, for example, as a 'troll' (Vepsäläinen, Paakki & Salovaara 2022).⁹

Social media typically involves a large group of people who read the posts but who do not respond to them. Who are they in terms of participation? Strictly speaking, to qualify as an overhearer would require that they read the posts accidentally, which might often not be the case, and an eavesdropper should be intentionally reading something that is not intended for them to read. For a public online discussion, the assumption is that the discussion is read, that is, that there are ratified "eavesdroppers" that remain unknown. Dynel (2014 2017) questions whether unrated participants exist in forum and social media discussions, as a reader of a public post cannot be reading it illegitimately. On the other hand, some scholars (Marcoccia 2004; Meredith 2021) accept the idea of lurking as eavesdropping, arguing that lurking participants are distinct from direct and indirect recipients and that the commenter is not aware of them in the same manner as they are aware of active participants.

A whole other level of participation arises when one of the participants is non-human. For example, the popular US-based conversational platforms Twitter and Reddit have hundreds of user-built chatbots, that is, algorithms that mimic human interaction, and subcultures built around conversing with them (Massanari 2016; Nishimura 2016). In the current volume, interactions with machines are in spoken form; the chapters discuss a computer-assisted

learning environment (Kurahila & Kotilainen, this volume) and a robocallee bot (Vepsäläinen & Paakki, this volume). Both offer, among other things, interesting insights into participation. The “talking kitchen” discussed in the chapter by Kurhila and Kotilainen is both addressed and responded to, even when the human participants know that the machine cannot respond. Extract 5 is a modified fragment from an example in their chapter.

Extract 5 (Kurahila & Kotilainen, this volume)

01 KIT: sujuuko kaikki ↑hyvin,
go+Q everything well
is everything going alright

02 Sara: jooh [sujuu, hi hi hi hi mts .hhh]
PRT go
yes it is

03 Nina: [hehhh he *he he he he he he] .hih .hih .hhhhh

04 Sara: .hih

05 KIT: kokkaat hienosti.
you are cooking fine

06 Sara: kiitos. krhih ha [ha ha ha ha ha ha]
thank you

Even though the computer (KIT) is spoken to, it does not occupy a position as an equal participant. Still, it can be talked about, and a discussion with it can turn into a non-serious performance, as Example 5 demonstrates. Overall, however, the first pair parts produced by the computer do not have a projection for a second pair part, as the missing second pair part is not noticeably absent (Kurahila & Kotilainen, this volume). The role of the computer is therefore one of a partial participant that has the rights of someone who is not fully competent. This could be compared to a conversation with an animal or a small baby – both are spoken to but not necessarily expected to respond. This is not the case in all conversations with machines, as people have also been reported to display accountability towards an embodied robot to a varying degree as if they were speaking to a fully competent interlocutor (Rollet & Licoppe 2019). Yet the issue of whether or not a machine is a competent conversationalist is not the analyst’s problem. As Pelican et al. (2020) argue in their study on reactions to a robot’s displays of emotion, “[f]rom a CA perspective, robotic emotions exist as soon as participants treat robots as having them”, and the same can be said to apply to other features of conversations with machines and software.

5.2 TIME AND SPACE AS DIMENSIONS OF PARTICIPATION IN DIGITAL INTERACTION

As previous studies of digital interaction have discovered, participants can orient to the dimensions of time and space differently, depending on the settings and nature of the interaction. Generally speaking, as Licoppe (2015: 106) asserts, “people who communicate at a distance constantly have to deal with both proximal and distant engagement, and reconcile the fact of being here, now, with the fact of also being ‘there’ at the same time”. In contrast to physical co-presence, this form of ‘connected presence’ (Licoppe 2004) is based on the frequency of contact, which creates temporal continuity (de Rijk & Stommel, this volume). That is, in the digital era, presence is not opposed to physical absence but rather to silence (Licoppe 2015: 109). Furthermore, a sense of connection to others can be enhanced by the built-in presence awareness indicators of the platforms (e.g., *Writing....*) and notifications (e.g., read receipts) (Ling & Lai 2016: 838).

As regards to managing presence in text-based interaction, participants in chat rooms have been observed to routinely use the acronym *BRB* ‘be right back’ to announce temporary absence and as a consequence, to display orientation to their being constantly involved and attentive (Zitzen & Stein 2004: 999–1000). If we compare this to mobile messaging, the latter is typically oriented to as being in a continuous state of incipient talk – one can participate in it intermittently without the need to mark one’s absences or sign-offs in between (Baron 2008; Lyons & Tagg 2019). Nevertheless, as Marmorstein (this volume) points out, messaging participants can also orient to their response as delayed by mobilising a greeting (e.g., ‘hi’) as a “tacit account” (ibid.).

Besides timing, another important interactional aspect of time is rhythm (see e.g., Couper-Kuhlen 1993) and this is likewise important in text-based environments. As mentioned previously in Section 2, the tempo of chat or messaging is rarely fixed and can alternate between asynchronous and close-to-synchronous. It is important that the rapid exchange of messages can be used as a resource to heighten the sense of a textually mediated presence and involvement in the on-going social action, as in the organisation of a one-off sexual encounter in a chat room (Jones 2013). In discussion forums by contrast, participants’ orientation to rhythm and timing is typically quite different, and the interval between comment posts can be days, weeks or even years. Example 6 displays a case with a thread that is re-activated many times after months and even years of silence. The opening post is by an anonymous participant who requests advice from an online community (Reddit) in a situation where he claims to have made his girlfriend’s sister pregnant. By the end of 2021, the post has received more than 2 600 comments. Most were posted within three months of the original post, but a few arrived later. For these later responses, we can observe different types of orientations to the timing of the comment posts. Extract 6 contains the opening post and the last four messages.¹⁰

Extract 6 (Reddit discussion; OP = original poster, R = respondent)

1	Level 1 15 Oct, 2018	OP	((<i>subject line:</i>)) Should I tell my girlfriend it was me who got her sister pregnant? ((<i>lengthy body text omitted</i>))
			((<i>messages omitted</i>))
2	Level 2 18 Dec, 2018	R1	Eventually it will become known to everyone, so either come clean now or run. Or you'll cause far worse destruction down the line to your girlfriend, her sister, and your child.
3	Level 2 1 Apr, 2019	R2	Jeez man, After such a catastrophic calamity only a miracle can conceal all the lies and deceit you will put your girlfriend through if you decide to keep the relationship. Here is to hoping that the sister's baby gets mixed up in the NICU. She might as well bring up another man's baby so that there are no physical characteristics shared between you and the sister.
4	Level 2 6 April, 2019	R3	Remindme! 3 months
5	Level 2 26 Nov, 2021	R4	Hey op its been 3 years how did it go?

In messages 2 and 3, R1 and R2 respond to OP months after the original post without treating the comment as a late response. Message 4 might be interpreted as having been provoked by R2 “re-opening” the discussion and R3 uses the Reddit’s *RemindMeBot* feature, which automatically sends the user a reminder of a thread at the targeted time (in this case, after three months). With this feature, R3 publicly occupies the role of an eavesdropper (see section 5.1) and displays orientation to the discussion as remaining potentially active. The rationale behind this could be that by then, the baby mentioned in the original post would have already been born. Three years passes until R4 posts another comment, inquiring about OP’s current situation (message 5). This message is initiated by using the attention-getter *hey* (see, section 3.1), marking the discussion as re-activated. Thus, R4 displays accountability for the three-year gap between the posts (on accountability in discussion forums, see Antaki et al. 2005). Simultaneously, R4 transforms the overall activity frame from being advice-oriented to (retrospective) reflection or newstelling (*how did it go?*). Overall, Example 6 demonstrates that discussion forums often do not have mutually achieved and coordinated closings. Instead, discussions may reach their closure by the next chosen commenter who does not return to comment (see also, Meredith 2021).

As regards to space as a dimension of participation, Mondada (2011; 2013) has introduced the notion of ‘interactional space’ to refer to the

material and spatial environment of social action as both action-shaping and action-shaped. As Mondada (2013: 268) summarises: “[A]ction contributes to configuring space, by selectively discriminating and highlighting relevant features. Interactional space is the result of these practices.” In co-present interaction, the spatial arrangement of bodies and body orientation as well as the artefacts in the setting can be oriented to as relevant in the establishment of interactional space. (Ibid.) Recently, Oittinen (2020) applied Mondada’s notion to the analysis of video-mediated interaction particularly in settings where some of the participants are physically co-located. For this type of setting, participants are required to display their simultaneous availability in both the local space (by acknowledging the presence and actions of the local participant(s)) as well as in the video-mediated space (by positioning oneself within the distributed participation framework) (ibid.). In the current volume, Virtanen and Niemi reveal how co-located hosts of a remote workshop utilise the exclusive affordances of their shared local space (as in eye contact and overlapping talk) to display mutual affiliation and shared accountability when assessing the remote attendees. By contrast, the video-mediated interactional space is made relevant by maintaining gaze at the computer screen and/or webcam.

In text-based interaction, an important aspect of spatiality is the ‘represented space’ (Mondada 2011), which refers to the verbal, photographic or other types of representations of physical space. A frequent form of participation, particularly in mobile messaging applications and on social media sites, is to share experiences of one’s current environment with those physically absent (‘I am here, and this is what being here is like for me’, Albawardi & Jones 2019: 10).¹¹ This is a possible avenue for future research.

6 Overview of the volume

The first section of the book (“Casual mobile messaging”) explores text-based interaction between friends and family via the WhatsApp application. The chapter by Michal Marmorstein (“Why say ‘hi’? Framed openings in Hebrew WhatsApp messaging”) investigates the practices of greeting in Hebrew. A prevalent observation in the study of mobile messaging has been that the participants appear to treat the discussion as a ‘continuing state of incipient talk’ (see Section 5.2), meaning that the channel is considered always open and it is not treated as necessary to re-establish contact upon each new conversation. Marmorstein shows that the practice of framing a message with a greeting has a specialised function, and unlike telephone or face-to-face conversation in which greeting is a routinised opening practice, in instant messaging it is a design choice. The next two chapters concentrate on the action design and coordination of joint activities. In the chapter “Proposing joint activities in WhatsApp group messaging: Notes on action formation, action ascription and response relevance”, Aino Koivisto discusses action formation and ascription in Finnish mobile group

interaction, focusing on invitations and proposals for joint activity and revealing that there is a low response relevance (see, Stivers & Rossano 2010) associated with these actions in group messaging. That is, when there are several participants, not everyone is always expected to respond. However, turn design may be utilised to display a stronger relevance to respond. Next in the section, Katharina König's chapter ("Response design in WhatsApp chats: Contextualising different stances of confirmation and agreement in text-based interaction") investigates the use of the German response particle *ja* ('yes') and its variants in responses to invitations and proposals in mobile messaging. In text-based interaction, prosody cannot be utilised to distinguish between different stances of confirmation and agreement and this means that visual resources are employed to differentiate between different stances and action trajectories.

The second section concerns the interactional practices on social media. Both chapters in this section inspect phenomena that have their roots in spoken, offline discussions. Many social media platforms contain a private instant messaging feature, and the first chapter in this section analyses an opening of a discussion between two strangers on the dating application Tinder. In that chapter ("Where to start? Initiating post-match chat interaction on Tinder"), Lynn de Rijk and Wyke Stommel demonstrate that openings on Tinder differ significantly from telephone openings and that the participants normatively orient to 'showing originality' due to encountering potential competition with other matches. In another chapter in this section ("The Finnish *anteeks(i) mitä* 'sorry what' as a resource for expressing affect on Twitter"), Helena Nurmikari analyses the Finnish repair initiator *anteeks(i) mitä* 'sorry what' that occurs in Twitter discussions. For spoken conversation, this repair initiator can be used to indicate problems such as hearing difficulties, but for Twitter interaction, it is first and foremost used to express affect and stance towards a prior tweet or other online content.

The two latter sections of the volume turn from text-based interaction to spoken and video-mediated interaction. The third set of chapters analyses institutional interaction using a video conferencing platform as their medium. Firstly, Elina Salomaa and Esa Lehtinen examine in their chapter ("Graphicons as a vehicle for eliciting negative emotions in multimedial workplace interaction") how a pre-given, restricted set of emotion images and animated GIFs is used in a remote workshop to encourage employees to express their negative emotions. They reveal how the employees reshape the represented, often extreme emotion to fit with the organisational emotional order. The following chapter ("Thanking and positive assessments in video-mediated workshops: Managing creativity exercises remotely") by Mikko T. Virtanen and Jarkko Niemi explores expressions of thanking and positive assessments that occur in remote workshops and the way and extent to which the technological context is made relevant in the accomplishment of these actions. Their study reveals that these actions not only open different action trajectories in different activity contexts but also display varying orientations to the relevance and procedural consequentiality of mediation.

The last section of the volume focuses on spoken human-computer interaction. The section begins with Salla Kurhila and Lari Kotilainen's

chapter (“Computer as a conversational partner: Responding to the uncomprehending computer”), which explores a situation in which participants respond verbally to the turns produced by a talking computer in a computer-mediated learning environment. They conclude that the computer’s first-pair parts do not have a projection for a second-pair part, but occasionally the human participants nevertheless respond to the machine. By doing so, they enact a performance in which the computer is credited with a role as a conversational partner and this adds a layer of performativity to their mutual interaction. The final chapter (“Unknowingly conversing with a non-human: How can a bot deceive a telescammer?”) by Heidi Vepsäläinen and Henna Paakki investigates a situation that involves the human participant not knowing that they are talking to a non-human. The authors present evidence that the bot is successfully designed to utilise the predictability of the overall structure of the telemarketing call, thus making it difficult for the callee to end the discussion.

7 Conclusion

In this introductory chapter, we have applied some of the key CA concepts and areas of research to the realm of digital interaction. We have seen that the classic concepts related to conversational turn-taking such as ‘turn’ and ‘turn-constructive unit’ are not readily applicable when operating in a text-based environment. However, for the near-synchronous settings, such as in chat and mobile messaging, patterns emerge that are increasingly similar to synchronous spoken interaction, such as sending syntactically incomplete messages to project continuation and “hold the turn” to oneself. With respect to turn design, we discussed interactional practices that can be traced back to practices of spoken interaction, such as ‘and’-prefacing, while simultaneously attaining new functions in digital environments. On the other hand, some emerging practices are novel in the sense that they originate from the properties of the platforms. Examples include the flexible use of the message as a communicative unit (splitting versus packaging) as well as the use of reply-marking feature, which can be used to disambiguate the targeted prior message. We also noted that the option of composing long and multi-unit messages in contexts such as discussion fora poses a problem to strictly CA-based methodology and calls for the inclusion of methods from textual analysis that focuses on the internal composition of a contribution.

A third dimension discussed in this introduction was multimodality, one of the central areas of contemporary CA research. For digital interaction, multimodality is a varied field and presents itself differently in different environments (e.g., video-mediated vs. text-based interaction). For video-mediated interaction, different practices of dealing with the visual boundaries of the camera and other factors such as managing cross-modal interaction (talk vs. text) have attracted analytic interest. In text-based interaction, on the other hand, various visual resources may be used with or without language.

We offered examples of emojis and punctuation, photographs and the ways in which social media *Likes* can be approached within the CA framework. These versatile visual and functional elements offer a rich set of interactional resources for displaying affect and creating rapport in online settings.

Finally, we discussed participation as well as space and time as its dimensions. The classic conceptualisation of participant framework devised by Goffman provides interesting points of comparison when considering digital environments and their participation roles. For example, this concerns the question of who are the ratified participants or the collective addressee of opening posts in discussion fora that are in principle open to everyone. On the other hand, interaction with machines offers an interesting setting in terms of participation such as those by a bot and robots. They can be exceedingly different with respect to how active or noticeable their role in the interaction can be and whether or not they are acknowledged as legitimate discussants. Also, participation in online settings is a varied and multifaceted phenomenon in which the orientation to space and time also varies depending on the digital settings (e.g., instant messaging vs. discussion forum).

What would be the future challenges and prospects for the study of digital interaction? One of the interesting areas that calls for more systematic research is polymedia, i.e. the existence of different digital platforms in parallel with offline interaction. Although this is something that is prevalently present in our everyday lives, the question remains as to how we parse together an actual interaction when it begins as a face-to-face conversation but continues for instance on a mobile messaging platform. One aspect of this is that turn design can carry traces of a previous communication event and that this also detectable to an outside observer. These “traces” would warrant further study. Another interesting issue that also has methodological significance concerns the possibilities of automatically archived data such as in instant messaging applications, email services and social media platforms. Since the logfile data can contain interactions dating back over several years, we can observe the change of interaction over time, as briefly demonstrated by Koivisto (this volume). This line of research would contribute to the study of turn-design, the development and accumulation of common ground as well as joint ‘interactional histories’ (see Deppermann 2018; Deppermann & Pekarek Doehler 2021).

NOTES

- 1 We would like to thank the two anonymous reviewers for their careful reading and insightful suggestions. Vepsäläinen's work on this chapter was supported by the Academy of Finland (grant number 320694) and Virtanen's by the Kone Foundation.
- 2 We acknowledge that for co-present spoken interaction involving more than three participants, a single conversation can likewise split into parallel conversations. This is referred to as 'schisming' (Egbert 1997). Nonetheless, during schismatic spoken interaction, participants still typically participate primarily in one sub-conversation at a time, whereas in text-based interaction, participants have been observed to participate in two or more sub-conversations concurrently (e.g., Virtanen et al. 2021).
- 3 Some research has been conducted on turn-internal discourse patterns (e.g., Ford 2001; Couper-Kuhlen & Thompson 2005; Koivisto 2012) as well as on the resources and practices through which the structure of monological talk is made recognisable in, for example, AA meetings (Arminen 1998), lecturing (Arminen 2005: Chapter 5) and academic presentations (Rendle-Short 2006). In addition, some multi-unit turn activities, such as storytelling and troubles-telling, have been investigated as "big packages" (Couper-Kuhlen & Thompson 2018: Online-Chapter D; see also Houtkoop & Mazeland 1985 on discourse units).
- 4 When discussing how to employ "a conversation analytic mentality" in the study of long, uninterrupted stretches of talk in informal interview settings, Hutchby and Wooffitt (1998: 186–191) similarly highlight the examination of the interviewees' self-repairs and amendments as one strategy to compensate for the unavailability of the next-turn proof procedure. These instances of self-monitoring can, according to the authors, "furnish us with the basis for analytic claims about the kinds of interactional or inferential concerns relevant to the speakers' ongoing production of their talk" (ibid. 189).
- 5 In addition, as West (2015: 61) points out, a unique feature of *Like* responses is that they cannot be responded to, at least not with another *Like*.
- 6 It is interesting that a sense of collectivity can also be accomplished through linearly ordered messages when each of the participants posts the "same" message, as in a similar positive appreciation. As Georgakopoulou (2016: 193) states, this serves "as the visual equivalent of lots of people clapping and cheering at the same time".
- 7 We adopt Levinson's (1988, 169) suggestion here to substitute Goffman's (1981) original term of *participation framework* with a more accurate term, *reception roles*. In Goffman's (1981) terminology, *participation framework* refers only to the reception roles and excluded the production roles (see also Sidnell 2011, 141; on production roles, see footnote 8).
- 8 In addition to reception roles, Goffman (1981) offers a widely-used typology of production roles (i.e. 'animator', 'author', and 'principal'). Due to space restriction, we do not discuss the production roles. For discussion and applications, see Draucker (2015) and Dynel (2017).
- 9 The ways in which labels such as 'troll' are used in online discussions could be analysed further by using the methods of 'membership category analysis' (see, Sacks 1992; Stokoe 2011). For applications, see e.g., Stommel & Koole (2010), Giles (2016) and Housley et al. (2017).
- 10 The messages in this particular forum form a threaded, tree-like structure which we indicate here through levels. The original post is on level 1, and all level 2 comments are replies to the original post.
- 11 A related phenomenon is 'showing' sequences of one's physical environment during casual video-mediated interaction (Licoppe 2014).

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